

## Monolithic, High-Speed Fiber-Optic Switching Array for Lidar, Phase I

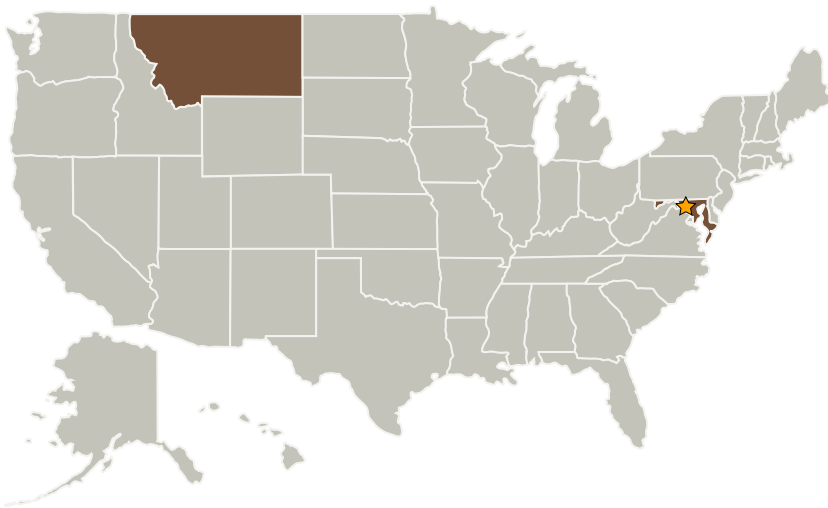
Completed Technology Project (2005 - 2005)



## Project Introduction

The proposed optical device is a fiber-based multi-channel switch to quickly switch a fiber-coupled laser among many possible output channels to create a fiber-based fixed-array laser transmitter for next-generation NASA lidar systems. The key innovation is the use of an arrangement of electro-optic prisms created in a nonlinear optical crystal through domain reversal to direct the laser into one of many possible output fibers. This design will provide several important features that are required, yet not currently available in a fiber switch, in order to achieve a fiber-arrayed lidar source, such as high optical power handling, reduced crosstalk, low optical loss, fast switching times, low power consumption, and robust construction in a monolithic package with no moving parts. The Phase I effort will demonstrate feasibility of the approach by creating a preliminary device with representative features to assess the suitability of the technology for use in lidar systems.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Goddard Space Flight Center (GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
ADVR, Inc.	Supporting Organization	Industry	Bozeman, Montana



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Goddard Space Flight Center (GSFC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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Completed Technology Project (2005 - 2005)

## Primary U.S. Work Locations

Maryland

Montana

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Tony Roberts

## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.5 Lasers